NOVA SCOTIA ADVANCED PHYSICS 12 · FINAL EXAM

Final Exam — Practice Test

Nova Scotia Advanced Physics 12 • 50 questions

This practice test was made by AI and there may be mistakes. If a question or answer looks wrong, use the Flag a mistake button to let Brett know so he can fix it.

1 **A ball is launched horizontally from a height of 45 metres . Using g = 10 , the time to hit the ground , in seconds , is**

ANSWER _____

Understand It with Pulse | Flag a mistake

2 **A pivot has a clockwise torque from 10 newtons at 4 metres and an anticlockwise torque from 5 newtons at 4 metres. The net torque, in newton metres, is**

ANSWER _____

Understand It with Pulse | Flag a mistake

3 **A pendulum of length 0.5 metres has period 1 seconds. A pendulum with 4 times the length has period, in seconds, of**

ANSWER _____

Understand It with Pulse | Flag a mistake

4 **A potential difference of 50 volts acts across plates 0.25 metres apart. The electric field strength, in newtons per coulomb, is**

ANSWER _____

Understand It with Pulse | Flag a mistake

5 **A sample has activity 400 becquerels. After 1 half lives its activity, in becquerels, is**

ANSWER _____

Understand It with Pulse | Flag a mistake

6 **A velocity of 120 metres per second acts at an angle with sine 0.6 and cosine 0.8. The vertical component, in metres per second, is**

ANSWER _____

Understand It with Pulse | Flag a mistake

7 **Objects of momentum 20 and 30 kilogram metres per second move in the same direction and stick together. Their total momentum is**

ANSWER _____

Understand It with Pulse | Flag a mistake

8 **An oscillator has amplitude 0.5 metres and angular frequency 4 radians per second. Its maximum speed, in metres per second, is**

ANSWER

Understand It with Pulse | Flag a mistake

9 **A 12 volt battery drives a current of 2 amperes through a circuit. The total resistance, in ohms, is**

ANSWER

Understand It with Pulse | Flag a mistake

10 **Light of frequency 100 hertz has photon energy 2 electronvolts. Light of double the frequency has photon energy, in electronvolts, of**

ANSWER

Understand It with Pulse | Flag a mistake

11 **A projectile has horizontal speed 30 and vertical speed 10 metres per second . Using g = 10 , the range , in metres , is**

ANSWER

Understand It with Pulse | Flag a mistake

12 **A 6 kilogram object at 4 metres per second collides with a 3 kilogram object at 2 metres per second in the opposite direction. The total momentum, in kilogram metres per second, is**

ANSWER _____

Understand It with Pulse | Flag a mistake

13 **An oscillator has amplitude 0.2 metres and angular frequency 10 radians per second. Its maximum acceleration, in metres per second squared, is**

ANSWER _____

Understand It with Pulse | Flag a mistake

14 **A current of 3 amperes flows through a resistor of 4 ohms. The power dissipated, in watts, is**

ANSWER _____

Understand It with Pulse | Flag a mistake

15 **A nucleus has total binding energy 120 megaelectronvolts and 15 nucleons. The binding energy per nucleon, in megaelectronvolts, is**

ANSWER _____

Understand It with Pulse | Flag a mistake

16 **A boat crosses a river 150 metres wide at 5 metres per second relative to the water. The crossing time, in seconds, is**

ANSWER _____

Understand It with Pulse | Flag a mistake

17 **Surface gravity is 40 metres per second squared. At a distance of 2 Earth radii from the centre, the gravity is**

ANSWER _____

Understand It with Pulse | Flag a mistake

18 **An oscillator has angular frequency 1 times pi radians per second. Its period, in seconds, is**

ANSWER _____

Understand It with Pulse | Flag a mistake

19 **A transformer has 200 primary turns and 400 secondary turns. A primary voltage of 30 volts gives a secondary voltage, in volts, of**

ANSWER _____

Understand It with Pulse | Flag a mistake

20 **A mass defect of 0.5 atomic mass units releases energy at 931 megaelectronvolts per unit. The energy released, in megaelectronvolts, is**

ANSWER

Understand It with Pulse | Flag a mistake

21 **Air resistance on a projectile reduces both range and**

A launch angle

B mass

C maximum height

D gravity

Understand It with Pulse | Flag a mistake

22 **Newton's law of gravitation states that force is proportional to the product of the masses and inversely proportional to the**

A distance

B cube of the distance

C square of the distance

D sum of masses

Understand It with Pulse | Flag a mistake

23 **The total energy of an undamped oscillator stays**

A increases

B decreases to zero

C constant

D doubles

Understand It with Pulse | Flag a mistake

24 **The electric potential at a point is the work done per unit charge in bringing a positive charge from**

- A infinity
- B the negative plate
- C the ground
- D another charge

Understand It with Pulse | Flag a mistake

25 **The energy of a photon is proportional to its**

- A frequency
- B wavelength
- C speed
- D amplitude

Understand It with Pulse | Flag a mistake

26 **A projectile launched at 30 degrees and one at 60 degrees with the same speed have the same**

A maximum height

B time of flight

C vertical speed

D range

Understand It with Pulse | Flag a mistake

27 **Geostationary satellites orbit above the equator with a period of**

A 12 hours

B 1 hour

C 1 year

D 24 hours

Understand It with Pulse | Flag a mistake

28 **A driven oscillator at resonance has amplitude limited only by**

A mass

B length

C gravity

D damping

Understand It with Pulse | Flag a mistake

29 **A motor works because a current carrying coil in a magnetic field experiences a**

A torque

B voltage only

C resistance

D charge

Understand It with Pulse | Flag a mistake

30 **A chain reaction in fission is sustained by**

- A neutrons causing further fissions
- B protons
- C electrons
- D photons

Understand It with Pulse | Flag a mistake

31 **A ball is launched horizontally from a height of 125 metres . Using g = 10 , the time to hit the ground , in seconds , is**

ANSWER _____

Understand It with Pulse | Flag a mistake

32 **A pivot has a clockwise torque from 40 newtons at 3 metres and an anticlockwise torque from 30 newtons at 2 metres. The net torque, in newton metres, is**

ANSWER _____

Understand It with Pulse | Flag a mistake

33 **A pendulum of length 1 metres has period 0.5 seconds. A pendulum with 4 times the length has period, in seconds, of**

ANSWER _____

Understand It with Pulse | Flag a mistake

34 **A potential difference of 90 volts acts across plates 0.3 metres apart. The electric field strength, in newtons per coulomb, is**

ANSWER _____

Understand It with Pulse | Flag a mistake

35 **A sample has activity 640 becquerels. After 4 half lives its activity, in becquerels, is**

ANSWER _____

Understand It with Pulse | Flag a mistake

36 **A velocity of 160 metres per second acts at an angle with sine 0.8 and cosine 0.6. The vertical component, in metres per second, is**

ANSWER _____

Understand It with Pulse | Flag a mistake

37 **Objects of momentum 25 and 25 kilogram metres per second move in the same direction and stick together. Their total momentum is**

ANSWER _____

Understand It with Pulse | Flag a mistake

38 **An oscillator has amplitude 2 metres and angular frequency 2 radians per second. Its maximum speed, in metres per second, is**

ANSWER _____

Understand It with Pulse | Flag a mistake

39 **A 15 volt battery drives a current of 3 amperes through a circuit. The total resistance, in ohms, is**

ANSWER _____

Understand It with Pulse | Flag a mistake

40 **Light of frequency 400 hertz has photon energy 4 electronvolts. Light of double the frequency has photon energy, in electronvolts, of**

ANSWER _____

Understand It with Pulse | Flag a mistake

41 **A boat crosses a river 80 metres wide at 4 metres per second relative to the water. The crossing time, in seconds, is**

ANSWER _____

Understand It with Pulse | Flag a mistake

42 **Surface gravity is 16 metres per second squared. At a distance of 2 Earth radii from the centre, the gravity is**

ANSWER _____

Understand It with Pulse | Flag a mistake

43 **An oscillator has angular frequency 10 times pi radians per second. Its period, in seconds, is**

ANSWER _____

Understand It with Pulse | Flag a mistake

44 **A transformer has 400 primary turns and 200 secondary turns. A primary voltage of 80 volts gives a secondary voltage, in volts, of**

ANSWER _____

Understand It with Pulse | Flag a mistake

45 **A mass defect of 0.25 atomic mass units releases energy at 931 megaelectronvolts per unit. The energy released, in megaelectronvolts, is**

ANSWER

Understand It with Pulse | Flag a mistake

46 **In projectile motion with air resistance the horizontal acceleration is**

A zero

B not zero

C equal to g

D upward

Understand It with Pulse | Flag a mistake

47 **A satellite in circular orbit has acceleration directed towards the**

A Sun only

B centre of the planet

C satellite

D tangent

Understand It with Pulse | Flag a mistake

48 **Damping in an oscillator is caused by**

A gravity

B resistive forces

C spring force

D inertia

Understand It with Pulse | Flag a mistake

49 **Faraday's law states that induced emf is proportional to the rate of change of**

- A current
- B magnetic flux
- C resistance
- D charge

Understand It with Pulse | Flag a mistake

50 **A positron is the antiparticle of the**

- A proton
- B electron
- C neutron
- D photon

Understand It with Pulse | Flag a mistake

ANSWER KEY

1.	3	**18.**	2	**35.**	40
2.	20	**19.**	60	**36.**	128
3.	2	**20.**	465.5	**37.**	50
4.	200	**21.**	C	**38.**	4
5.	200	**22.**	C	**39.**	5
6.	72	**23.**	C	**40.**	8
7.	50	**24.**	A	**41.**	20
8.	2	**25.**	A	**42.**	4
9.	6	**26.**	D	**43.**	0.2
10.	4	**27.**	D	**44.**	40
11.	60	**28.**	D	**45.**	232.75
12.	18	**29.**	A	**46.**	B
13.	20	**30.**	A	**47.**	B
14.	36	**31.**	5	**48.**	B
15.	8	**32.**	60	**49.**	B
16.	30	**33.**	1	**50.**	B
17.	10	**34.**	300		

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